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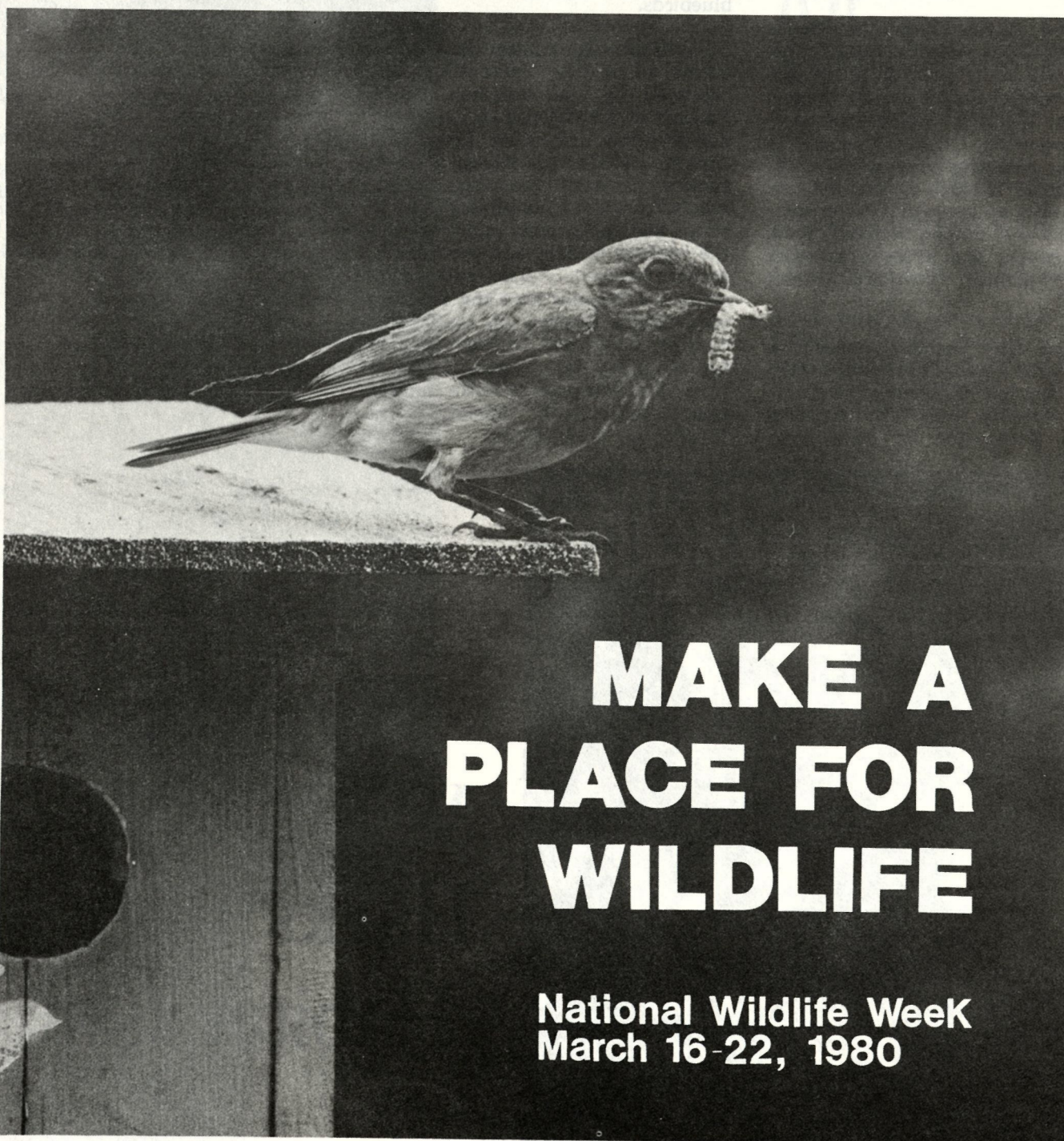
# citizens' bulletin

Volume 7

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## MAKE A PLACE FOR WILDLIFE

National Wildlife Week  
March 16-22, 1980

Leonard Lee Rue III

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When President Franklin D. Roosevelt proclaimed a new national observance, Wildlife Restoration Week, in 1938, the nation had only recently learned an important environmental lesson from its disastrous Dust Bowl: without adequate protection, our natural resources could be quickly lost forever. It seemed appropriate then that the theme of the week in March sponsored by the National Wildlife Federation should be habitat protection.

Now, 42 years later, the week is called National Wildlife Week. This year it will be held March 16 through 22, and once again the theme, "Save a Place for Wildlife," emphasizes habitat protection. As Thomas L. Kimball, executive vice president of the National Wildlife Federation, explains: "It's an issue that never goes away. Very simply, without food, water, cover, and a place to raise young — habitat — wildlife cannot survive."

For the fourth consecutive year, actor and environmentalist Robert Redford is serving as chairman of Wildlife Week. The National Wildlife Federation is distributing

more than 1.3 million Wildlife Week posters and nearly 360,000 educational kits, and more than fifteen million students, teachers, and other conservation-minded citizens are expected to participate in National Wildlife Week activities this year.

Connecticut's special Wildlife Week observation this year goes beyond saving a place for wildlife. See page 3 for the story on how conservation-oriented groups can "make a place" for Connecticut's bluebirds.

Preserving habitat is also the theme of a new color slide show produced by the National Wildlife Federation for showing to classes and conservation and other groups. It consists of 36 color slides, a music-backed cassette recording, and a teacher's guide containing printed script and background information on the various habitat and preservation topics covered. The slide show, which emphasizes that the future of our wildlife depends on the willingness of Americans to "Save a place for Wildlife," is available for \$9.95 from the National Wildlife Federation, 1412 16th Street, N.W., Washington, D.C. 20036. ■

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## Forty-third Wildlife Week Harks Back to Habitat Issue



National Wildlife Week  
March 16-22, 1980

# Make a Place for Wildlife

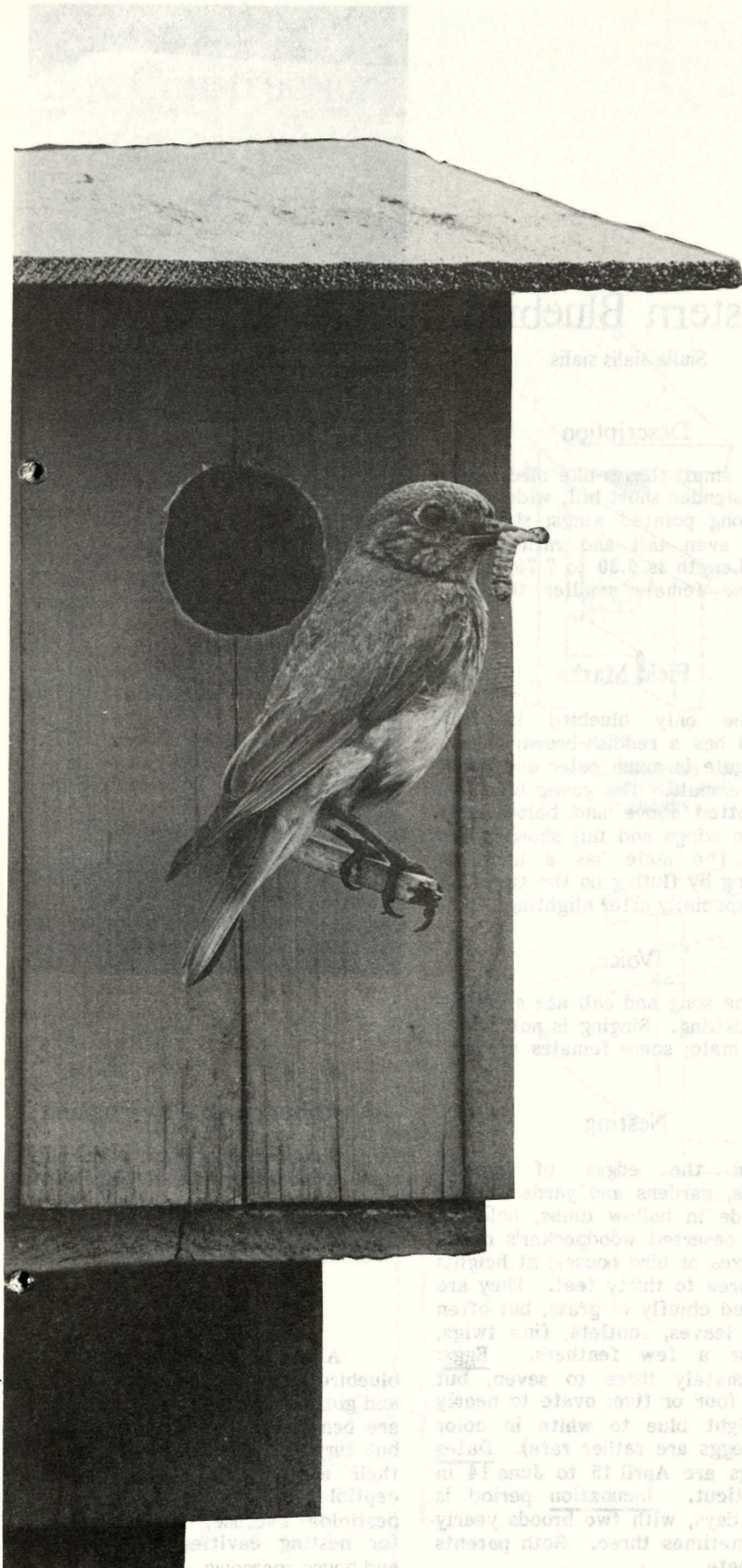
## Nesting boxes will give Connecticut's bluebirds a chance

By George E. Brys, DEP Wildlife  
Biologist, and Steven O. Fish,  
Assistant Director of Information and  
Education for Education

Once very common, bluebirds  
have become a rare sight in most of  
Connecticut. In fact, many people  
may never have seen one. But all is  
not lost for the bluebird.

Major problems confronting the  
bluebird are the increasing shortage  
of natural nesting cavities and the  
fierce competition with European  
starlings and English sparrows for the  
nest sites available. Natural nesting  
cavities have fallen to cordwood cut-  
ting and land development. The  
introduction of the starling and the  
house sparrow have left the mild-  
mannered bluebird at a disadvantage  
against these more aggressive  
species.

By building and maintaining  
nesting boxes, we can give the blue-  
bird a chance. Easily constructed  
from scrap wood, these boxes provide  
places for the bluebirds to nest and  
raise their young. Placed in habitat  
devoid of natural nest cavities, but  
otherwise suitable, and periodically  
visited to evict undesirable occu-  
pants, the boxes have been successful  
in bolstering declining bluebird popu-  
lations in other parts of the United  
States and in Canada.

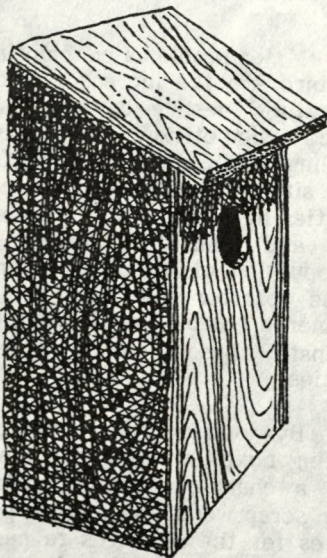




Members of various outdoor organizations can help by coordinating the building, placement, and maintenance of nest boxes in suitable locations. Industrial arts instructors throughout the State have been contacted about the possibility of their students building the boxes in cooperation with conservation-minded groups. Involving youths in the effort will help the bluebirds but it will also be offering a lesson in wildlife conservation to these young people.

Our goal is to establish a bluebird nest box trail in every Connecticut community this March. The State will supply participating groups with scrap wood sufficient to construct at least 15 boxes. Through this project the DEP Wildlife Unit also hopes to gather important information concerning the bluebird population in Connecticut.

Would-be participants can contact George Brys, DEP Wildlife Unit, State Office Building, Hartford, CT 06115. Indicate the name of your organization, the name of a contact person, and a description of the efforts you plan (i.e., number of people involved, number of boxes to be built, areas where trails will be established, etc.). ■



Nels Barrett

## Eastern Bluebird

*Sialia sialis sialis*

### Description

A small thrush-like bird with a rather slender short bill, wide at the base; long pointed wings; short but ample, even tail and rather short legs. Length is 6.30 to 7.70 inches, with the female smaller than the male.

### Field Marks

The only bluebird in New England has a reddish-brown breast; the female is much paler and duller than the male. The young bluebirds are spotted above and below, with only the wings and tail showing any blue. The male has a habit of fluttering by fluting up the tip of his wing, especially after alighting.

### Voice

The song and call are a melodious whistling. Singing is not unique to the male; some females are also singers.

### Nesting

On the edges of woods, orchards, gardens and yards. Nests are made in hollow limbs, holes in trunks, deserted woodpecker's nests, nest boxes or bird houses; at heights from three to thirty feet. They are composed chiefly of grass, but often include leaves, rootlets, fine twigs, hair, or a few feathers. Eggs: approximately three to seven, but usually four or five; ovate to nearly oval; light blue to white in color (white eggs are rather rare). Dates for eggs are April 15 to June 14 in Connecticut. Incubation period is twelve days, with two broods yearly and sometimes three. Both parents participate. ■



### Distribution in New England

Bluebirds are migrant and summer residents except at high elevations; they are rare winter residents in southern new England, more commonly near southern coasts.

### Habitat

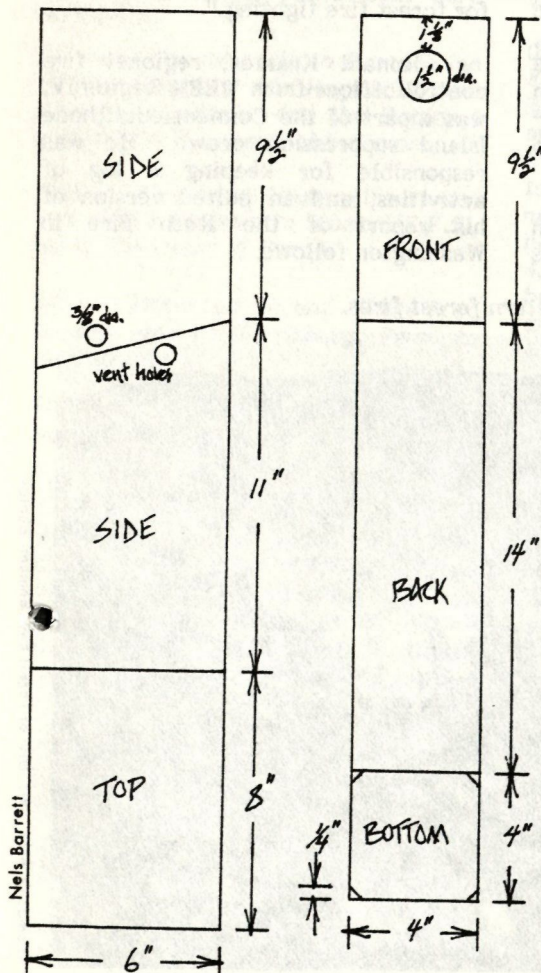
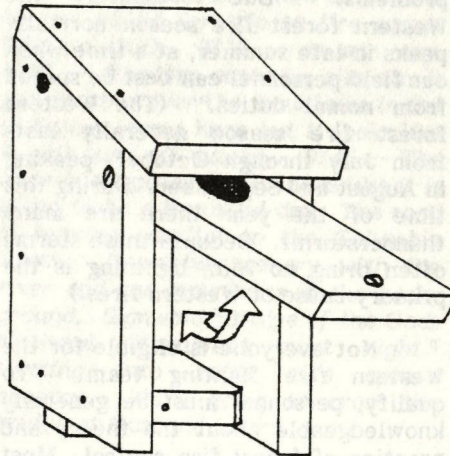
A bird of semi-open habitat, the bluebird prefers orchards, parklands, and golf course type areas. Bluebirds are beneficial, eating mainly insects but turning to fruits and berries for their winter diet. They are susceptible to severe cold weather, pesticide overuse, and competition for nesting cavities from starlings and house sparrows. ■



# Bluebird Nest Box Construction

Illustrated below are plans for the bluebird nest box. Designed to meet the needs of the bluebird and to last over time, the box is easily constructed using hand tools and a minimum of materials.

There is no need to stain or paint the boxes but they can be painted with a latex exterior paint in a light shade. DO NOT paint the box interiors.



Nels Barrett

## Nest Box Trail

Dr. Lawrence Zeleny, founder of the North American Bluebird Society, offers the following tips for establishing and maintaining a bluebird nest box trail:

1. Select good habitat. Open rural country with scattered trees and low or sparse ground cover is best. Pastures, large lawns, golf courses, parks and cemeteries are all good sites for nest box trails. Bad habitat selection may result in more house sparrows, not bluebirds.
2. Avoid brushy and heavily wooded areas. This is the domain of the house wren.
3. Avoid areas where house sparrows are abundant.
4. Avoid areas of extensive pesticide use.
5. Most nesting boxes are set three to five feet above ground level, preferably on posts or poles.
6. Face boxes in any direction, but preferably toward a tree from twenty-five to one hundred feet distant.
7. To accommodate bluebirds' territorial preferences, keep boxes at least one hundred yards apart to ensure their use.
8. Protect boxes against snakes, raccoons and other predators if necessary. For example, raccoon guards can be mounted over the entrance hole for boxes located in areas with heavy raccoon populations.
9. Monitor the boxes about once a week during the nesting season if possible.
10. Always remove house sparrow nests immediately when found. Remove bluebird and other nests as soon as the young birds have flown.
11. Inspect boxes in late winter. Clean and repair if necessary. Bluebirds will not nest in a box that has an old nest in it.

Note: New boxes and trails should be established by early March in Connecticut, prior to the start of the bluebird nesting season.



On any day, at any time, just when least expected, you could be summoned from your sleep, rushed to the airport, and loaded on a plane headed for the Western United States. You could, that is, if you were a member of Connecticut's Western forest fire fighting team. Every year the Western states have large forest fires which local and regional suppression crews cannot control alone. To supplement the Western forces, Eastern states including Maine, New Hampshire, Vermont, Pennsylvania, New Jersey, New York, Rhode Island, and Connecticut, with the help of the Forest Service, train members of their forest fire crews to fight western fires.

According to Charles Snyder, DEP Forest Fire Control Officer, more than 400 persons from the Northeast have fought western fires in the past four years. Connecticut's crew was put on an alert status during the fire disaster in Idaho in August 1978 and went west for its first time this past September and for a second tour just eight days after its return from the initial detail.

The first call, on September 17, took fourteen men from Connecticut and five from Rhode Island to fight a 34,000-acre fire in the Angeles National Forest, outside Pasadena, California. The group returned to Connecticut on September 25.

The second call, on October 3, took a Connecticut/Rhode Island crew to Washington State. There, for nine days, they helped fight a stubborn, 3,300-acre fire in the big timber country of the Gifford Pinchot National Forest, sixteen miles from the Columbia River.

A total of 17 Connecticut fire fighters had the opportunity to go west, Snyder said. These crews included two agency forest fire control officers and two foresters, but most team members are DEP maintenance personnel. The maintainers are not firemen by trade; all have other skills and duty assignments within the wide range of field operations carried on by the DEP. "A fire call at the height of the recreation season," Snyder says, "could cause us real problems. But fortunately the Western forest fire season normally peaks in late summer, at a time when our field personnel can best be spared from normal duties." (The Western forest fire season generally lasts from July through October, peaking in August and September. During this time of the year there are many thunderstorms. Because these storms often bring no rain, lightning is the primary cause of Western fires.)

Not everyone is eligible for the Western fire fighting team. To qualify, personnel must be generally knowledgeable about the theory and practice of forest fire control. Most crew candidates are already trained and experienced in Connecticut fire suppression procedures. In addition, these fire fighters must go through a special training course each year. In this course, they learn the fire-fighting techniques peculiar to Western fires.

The fire fighters must also be in top physical condition and must pass

a rigorous physical examination, which may include a running test to determine stamina. Fitness is important, Snyder says, because fighting a Western fire is likely to include not only hard physical work during 12-hour shifts "on the line" but also extreme temperatures (at last fall's fire in California, daily temperatures were in the 95 to 104 degree range), rugged terrain, and four or five or fewer hours sleep a night. There are few roads in the western forest, so it is often difficult to get to the fire sites, and the suppression crews frequently have to hike miles before they reach the point where their real work begins.

Fighting forest fires is expensive. So why does the U.S. Forest Service add to its costs by bringing fire fighters across a continent? Why not just use locals? "The Forest Service has found," Snyder says, "that it is less expensive in the long run to use trained and experienced Eastern crews than to get local people off the street and train them. Local conscripts are not physically qualified, don't work as trained teams, and often don't have the right attitudes for forest fire fighting."

Ronald Kramer, regional fire control officer from DEP's Region IV, was a part of the Connecticut/Rhode Island suppression crew. He was responsible for keeping a log of activities, and an edited version of his report of the Ruth Fire in Washington follows:

*Rugged terrain is one problem in Western forest fires.*



# Go West, Connecticut Forest Fire Fighter...

By Randy Sheinberg, Massachusetts  
Audubon Intern



# ...One Way to Hit Some Hot Spots

By Ronald Kramer, Regional Fire Control Officer, DEP Region IV

October 3, 1979

I received a call from Chuck Snyder at 1040 for possible activation for a fire in Washington. I felt the crew could be ready on short notice and I told him so. At 1300 crew had been notified and was ready.

1430 -- Snyder informed me we would be assigned to the Ruth Fire in Washington. The fire was on the Gifford Pinchot National Forest located 16 miles north of the Columbia River and east of Portland, Oregon. Crews from New York, New Hampshire, and two from Maine along with Rhode Island/Connecticut were responding.

To avoid the long trip to Ramada Inn in East Hartford the Region IV personnel met Snyder and the Region I and Region III personnel in Union.

1950 -- Arrived at Logan Airport and was informed Quentin Mack, US.F.S., was to be Chief of Party.

2053 -- Departed Logan. There is to be one stop at Harrisburg, Penn., to pick up crews.

2205 -- Arrived Harrisburg and departed 2250. We're on our way.

October 4, 1979

Still in the air at 0045. Met with Regional Liaison Officer Ames Harrison. Crew Liaison Officer signed to our crew to be Wayne Kingsley from Vermont's Green Mountain National Forest. Landed Portland 0345.

0220 -- Arrived at the Air National Guard Camp at the other side of the airport. This is to be a staging area.

0230 -- Checked in and got the crew fed.

0315 -- Moved crew into gymnasium to be out of the dampness. Temper-

ature approximately 55 degrees and quite humid. Crew took over one corner of the gym and spread out on the floor. Checked out from supply one each, nomex shirt, pants, and fire shelter. Any other equipment need is supposed to be available at Fire Camp.

0515 -- Managed a couple hours of sleep. Crew still awaiting assignment.

0715 -- Harrison informed us to load on bus #2104 for trip to fire camp. Still no CLO. 0717 -- on our way. 0730 -- Heading easterly, the sun is just coming over the mountains in the distance. Some haze but it looks like it will burn off quickly. 0745 -- The haze is all gone, and it looks like it is going to be a beautiful day. The road is running parallel to the Columbia River. Beautiful scenery with the river and the mountains in the background. Sign said "Bridge of the Gods National Monument next right." Getting into some nice spruce country. We're going to cross the bridge at Cascade Locks.

0830 -- Arrive at Fire Camp.

0945 -- Checked through Plans, Finance and Supply. Crew was issued sleeping bags, headlights, canteens and goggles. We are informed Fire Camp is going to be moved so I have to arrange for transportation to the new camp. I was told the crew would be working tonight. Fire size now is 4,000 acres. It would appear to me to be slow burning in this type of fuel and a temperature of approximately 40 degrees at 0800.

1015 -- Leaving Camp by bus. Stole the bus from the crew from New York. You have to be aggressive, or we would be here all day.

1030 -- Arrived at new Camp site. Only difference is it is a larger field. Sleeping area for night shift is to be under trees for sleeping during the day.

1200 -- Had to wake up crew and tell them to move to another area. They said they wanted all the night crews in the same area.

The statistics for yesterday posted on the board said they had 70 mph winds at the fire site. I find that hard to believe; wind is quite calm now.

1315 -- Raymond and A. Russo coming back from Supply with hard hats, mats and a garbage can.

1630 -- CLO Wayne Kingsley arrived.

1730 -- Crew fed and getting geared up.

1825 -- Crew moved to loading area.

1845 -- Crew returning to camp. There seems to be much confusion over transportation. Crew time started at 1800. Loaded crew into van for trip to fire. It is dark now, and I dislike going into an area I am not familiar with at night. Crew to be assigned line building on hot line in Division I - Sector B.

2255 -- Things going well until Robert Corbidge kicked up a stone with his pulaski (a tool that combines an ax side and a grubbing tool). The stone hit him on the side of the nose and dirt and cinders flew into his left eye. Dick Raymond is an EMT, and he was called to check on it. The eye was flushed and many of the cinders removed but Raymond was not able to get it all. He suggested Corbidge go to the hospital and Corbidge was removed from the line at 2300.

October 5, 1979

0900 -- All I know at this point is that Corbidge arrived at Camp at 0115, and the First Aid Tent removed some more of the grit but could not get it all. Corbidge was told they would take him to the hospital when they had enough people to load a van. Corbidge taken to the hospital at 0845 on 10/5/79.

Crew worked a hot line last night and did a great job. CLO and Sector Boss impressed with all aspects of the performance. Long shift from 1800 hours on 10/4/79 to 1030 on 10/5/79.

1400 -- Woke up and hit the showers. Went to check in with Plans and found we would be working again tonight. Returned to the sleeping area and found that Corbidge had returned from the hospital and will be able to work tonight.

1630 -- Went to Plans for briefing and found that we are going to be working same line as last night. I talked Sector Boss into letting us sign out a chain saw. Going to brief crew on safety again before we leave. This should be a daily practice. Crew to start at 1800.



Crew briefed and ready to leave at 1745. Loaded onto 6x6 truck for the ride up the mountain.

#### October 6, 1979

The night was uneventful. The crew worked hard and enthusiasm was high. I believe the chain saw was helpful to morale. In addition to working the same line we worked last night, the crew also put in a line between the dead end road downslope to road N354. Burning snags and steep terrain seem to be the greatest safety hazard right now. It is an awesome sight to see a tree that is over 200 feet tall burning and falling down. The noise is tremendous and sounds like a landslide. Many snags like this in our area. These snags are being marked and flagged so a professional felling crew can take them down. They are too large and dangerous for us to handle.

0900 -- Back in Camp early for a change but cold as hell. Men are chilled right to the bone. It is warmer on the mountain than it is in Camp.

1530 -- Went to briefing. We're going to be working the same section of line, Sector B, Division I. In a situation like this it is just as well they don't move us around--at least we are familiar with the area and this should help us cut down on accidents. There have been numerous minor accidents on the fire line so far. One crew member, not one of ours, went to sleep under a 2½ ton truck. The driver moved the truck and ran over the sleeping man.

When we arrived at the Sector we found that most of the snags had been felled. All those close to the edge of the line, however, were dropped over the controlled line and this meant building line around each of these.

#### October 7, 1979

We found a hose-lay partially started so we picked up on it and improved it. Hey, this is our kind of ball game. This process worked great until about 0400 when the U.S. Forest Service crew assigned to us told us the nurse tanker wouldn't give them any more water. We were just at the point with the hose-lay that we could have taken care of our whole area. Oh well, it will be ready for the day shift.

1330 -- Woke up and went to check with Plans and make out the payroll. Going to work same area tonight. This should take care of our Sector and I feel the fire would be controlled. However, they are expecting strong winds tomorrow.

1630 -- We left for the line. Crew is scheduled to work all of the line in Sector B, Division I. The Maine crew is going to work in Sector A.

The night was uneventful and the crew worked well finding many hot spots (patches of fire that, in the west, may go five or six feet down into the ground). Mop-up is very similar to Connecticut except fire covers almost 100% of the ground.

Fire size at this point is 3200 acres. The winds they forecasted never materialized but they are forecasted again for tomorrow. They want the fire line to be able to withstand sustained winds of 20 mph.



Trees six to nine feet in diameter go down "like a landslide."

The night was cold and damp, sometimes with heavy fog. The fog cools the fire but makes it very difficult to find hot spots. The chain saw has done wonders for morale. Line construction can obviously be completed better and more quickly this way. The Rhode Island/Connecticut crew

seems to be amazing everyone because of its morale and spirit. Crew still singing songs and playing cards every chance they get.

Just a note that the man that was run over by the 2½ ton truck was not seriously hurt: very lucky man! I also want to comment that our CLO has proven to be a very effective part of the crew. His spirit is excellent, and he is very knowledgeable. The crew has adopted him as one of our own. Very important factor in the overall performance of the crew.

#### October 8, 1979

Returned to Camp at 0800. Crew went to breakfast and had eggs and hot dogs, yes, I said eggs and hot dogs. I swear they are trying to break us, but it didn't work. Instead the crew sang the Oscar Myer wiener song to the cook.

1600 -- Crew ready to ship out. On the trucks at 1630. We are going to work a different section of line tonight. Arrived at the scene and found many hot spots. We were assigned one pumper.

The area turned out to be a spot fire approximately 10 acres in size. Laid hose from the pumper and progressed well working the area from south to north. At approximately 2000 hours another pumper was assigned to us, and we laid hose on the north end working both ends towards the middle. We showed them how to lay hose and use it, using the minimum amount necessary. Here they tend to just overwhelm an area.

#### October 9, 1979

After midnight the winds started picking up -- gusting to approximately 30 mph. We had a flare-up well over the line above our position. The crew responded with an additional hose lay, and we were able to contain it and hold it to .5 acre in size. Received good comments from the Division Boss (who was watching from the next ridge as it turned out) and the Sector Boss who was there with us all the time. Happy about the recognition the crew is getting -- it is well-deserved.

0800 -- Returned to Camp. It is my understanding we lost an additional 100 acres last night because of the high winds. Right now in Camp the wind is very gusty. I can imagine



what it is like in the mountains. Crew scheduled to work the same area again tonight.

1630 -- Crew ready to roll. Got 4½ hours of sleep today -- the most ever.

1640 -- Moved out on 2½ ton vehicles. When the truck arrived at checkpoint 4 it stopped and we were told by Division Boss that we were to hold there and we would be working as a Strike Team (this is a crew that is sent to any area of the fire that is experiencing problems). This did wonders for the crew's morale. It was something different, but it also meant that they recognized our potential.

The first assignment came at 2000. The Division Boss in Division III called and said he was having problems holding a line in a reforestation project. We went to the scene but it turned out to be a routine mop-up operation. We did spend about one hour correcting an extensive hose-lay into the area. There were many problems, the first 1000 feet of the lay was installed in reverse along with wyes installed every 100 feet. This is not too critical on a downhill lay but when pumping uphill can reduce your efficiency by 50 percent.

#### October 10, 1979

We broke for lunch at 2400, and CLO Kingsley just happened to switch his radio to channel 4 just as the Division Boss of Division IV called and said he had a blowup in a reforested area and needed our help. We responded and even from a distance you could see the area was burning extremely well. We arrived and saw the fire was in a young stand with a maximum DBH (diameter at breast height) of 6 inches and very thick. The fire was running parallel to the slope, being pushed by 30 to 35 mph winds with gusts exceeding that. One crew had been assigned to watch a road and pick up any spot fires across the road as the valley was yet unburned. There was a 1½ inch hose lay along the flank of the fire and a crew was making a feeble attempt to cool down the flank but they were not using the water effectively. Most was going well inside the burn.

I met with the Sector and Division Boss. The plan was to start in at the flank and work toward the head to tie into a bulldozer cleared "cat-line." I told the Sector Boss that with this type of fire behaviour I would prefer

my own crew to man the hose-lay and he agreed.

We started along the flank and had progressed about 50 feet when the chain saw gas cap vibrated off and was lost, making the saw inoperable, so we started cutting line with axe and pulaski. Shortly after Sector Boss Denny called us by radio to pull our crew out because of the extreme burning conditions. He feared we would get fire across the line, trapping the crew. It really looked frightening, and we withdrew.

We returned to the starting point above the road, and the wind seemed to die down a little. I felt we could give it another shot and Denny agreed. After this things progressed very well. Kingsley was acting as line location, and I had the crew, which was split up because some were working nozzles. We built line and tied into the cat-line, working in very limited visibility and intense smoke. Once we tied into the cat-line things cooled down some and we continued with our line parallel to and up slope, tying the line into an old burn. We stopped it. I was proud as hell.

After we had finished, I found out that the other crew assigned to work with us had abandoned us and retreated in a very unorganized fashion because the smoke and heat were so intense.

1630 -- Back on the 6x6 and scheduled to work Division I - Sector B again. The wind has died down, and it looks like containment is close. (Found out they declared it contained at 1500 hours today.)

1730 -- Work plan changed again. We are going to work Sector A with the probe-eye operator (an infrared device to locate hot-spots).

#### October 11, 1979

The night was uneventful, but we did find a large snag that was burning one-half chain (four rods or 66 feet) from the fire's edge and many hot spots.

1030 -- Found out that the crew was going to be working days tomorrow. Crew spirit great -- we are going to get a good night's sleep.

#### October 12, 1979

0430 -- Crew up and off to breakfast. Went to Plans and found we would be

working the same sector. Boring but safe. Crew sweeping the area checking for hot-spots and mopping up five chains in from the line. Spent the afternoon making water bars (to avoid erosion) on the line. Crew returned to Camp at 1800.

2000 -- I was told by Harrison that we would be staying in Camp tomorrow for possible shipment home at 0630.

#### October 13, 1979

Crew up for breakfast and standing by. Found out that departure time had been changed to 2300 hours tonight.

2115 -- Arrived at Portland International Airport.

2330 -- Crew boarded the aircraft and we lifted off at 0010 for Logan. Arrived at Logan at 0740 and were happy to see Snyder waiting for us with our transportation home.

#### SUMMARY

The Ruth Fire's acreage was revised up and down several times because mapping was very difficult due to the heavy smoke. Final acreage was 3200 with an estimated 3 million dollars damage to resource. No structures were lost. The suppression cost was over 2 million dollars.

The fuel types are quite different than what we are accustomed to in Connecticut and this is what contributed to the high cost in resource loss and suppression. Some of the more obvious are the Noble and Pacific fir which grow to a diameter of up to 8 feet. The western red cedar grows to 6 feet and the Port Orford cedar to 9 feet. Mountain and western hemlock can be seen growing 6 feet across the butt and Douglas fir up to 8 feet.

The understory in most areas is very sparse, consisting of Devil's Club and a shrub form of maple and a broadleaf maple. Because of the ecological and climatic factors a tremendous amount of duff (or decaying vegetative matter) builds under the forest canopy and when fires occur they are very difficult to extinguish.

During the same time as the Ruth Fire there were, to my knowledge, four other fires burning in the same general area, two in Washington and two in Oregon. ■



# Training Programs, Early Detection Important Parts of Connecticut Forest Fire Control

By Randy Sheinberg, Massachusetts Audubon Intern



There are plenty of Connecticut fire fighters who don't go out West looking for work; they protect forests on the home front. Thanks in part to 60 years of fire control, today Connecticut is almost 60 percent woodlands, compared with only 29 percent in 1860. Increased woodlands means more forests to protect, making the fire fighter's job more important today than ever before.

Even before Connecticut's colonization, forest fires were widespread. Indians often used fires to burn out the cover of their enemies, to improve game habitat, and to provide open fields for subsistence agriculture. Until 1673 fires were allowed to burn without control unless buildings were threatened. The earliest forest fire laws, passed in 1674 and 1773, protected only human life and property and made no specific provisions for the forest resource.

Legislation passed in 1905 created a town forest fire warden system. In its early years the fire warden system was not very effective. Despite the fact that approximately 140 towns had appointed wardens by 1910, fires burned more than 47,000 acres of Connecticut woodlands in that year. To minimize the effect of local political influence and to assure that qualified personnel were selected, the State Forest Fire Warden was given the responsibility of appointing wardens by the 1921 State Legislature. Between 1933 and 1941, the Civilian Conservation Corps developed roads, improved forests, and helped to fight forest fires, providing a much-needed emphasis on forest resource protection.

The organization of Connecticut's forest fire fighting system has become much more efficient than when it first began. Local fire departments now handle most minor forest fire situations without State assistance. If local departments are unable to control a forest fire, they contact the forest fire warden for their particular area. Each of the four DEP inland regions has a Regional Fire Control Officer, and regional office staff members, most of them ordinarily assigned to various maintenance duties, are trained to serve on forest fire crews. These crews fight the larger, more serious forest fires, often with the assistance of local community crews that have been trained in forest fire control. During 1978 DEP's trucks and pumps

pumped a total of 850 hours at forest fires.

All forest fire fighters are trained for the work. Classes for DEP's regional forest fire fighters are held during the winter and usually last a minimum of three days. In addition, a good deal of time is spent training local fire departments. Although it is difficult to determine how many active firemen there are in the State, Charles Snyder, DEP Fire Control Officer, estimates that some 2,000 state and local forest fire fighters were trained by the DEP last year.

Compared with the poor forest fire fighting record earlier in the century, recent years have shown tremendous improvement. The 1,444 fires reported in 1978 burned only 2,453 acres. By contrast, in 1915, the 1,444 fires burned 103,555 acres. However, there is still a potential for major forest fires. The highest risks exist in three large areas of the State: the northwestern corner from Mount Riga on the Massachusetts border to the Schaghticoke Indian Reservation in Kent; the northeastern corner of the State in Thompson; and along the Rhode Island border from Plainfield down to North Stonington.

According to Snyder, three-quarters of Connecticut's forest fires occur during the months of March, April, and May, when there is little foliage and the sun and the wind can dry the ground rapidly. Once foliage appears, it cuts the effects of sun and wind and holds more moisture on the ground, reducing the fire danger. However, an extended period without rain during the summer or fall can cause real problems, and the fires that occur after April tend to burn deeper and do more damage to the trees. Says Snyder, "The only time you're really safe from forest fires is when snow is on the ground."

Suppression generally follows a basic plan for a typical Connecticut fire. Unlike fires in the West, local forest fires are usually easily accessible by road. Since water is readily available in this area, fire fighters can use it to help extinguish the fires. First they spray the fire with water from their hoses or backpack pumps to cool it. Then, using special rakes, brooms, and shovels, they construct a "fire line" around the fire, so that the blaze will not be able to spread beyond that perimeter. They clear all brush and flammable debris



from the area, down to mineral soil, leaving nothing for the fire to burn. Fire brooms are used to sweep away litter, and then shovels, fire rakes, and plows are employed to clear heavier fuels.

Though suppression efforts are more dramatic, prevention and early detection play big parts in the State Forestry Unit's efforts. Every morning during peak forest fire season, March 15 through May 20, Snyder receives the National Weather Service's forecasts of expected weather, along with data on temperature, relative humidity, and winds. Figuring in data on the dryness of the ground (such as number of days since last rainfall) and on vegetation condition (Is plant life in the area green, partly green, dead?), with a slide-rule-like gadget he computes figures for how fast a fire would spread under the prevailing conditions and how difficult it would be to put it out. He then compares his figures with readings made at six fire danger stations around the State. If the numerical ratings fall into the "dangerous" category, a fire spotter flies — so long as conditions permit. And you probably hear the radio announcements saying "Forest fire danger today is high."

On the highest danger days the State is patrolled from the air by one or, on the worst days, by two small chartered airplanes. On these flights, at altitudes of roughly 1,000 to 3,000 feet, a trained State Forestry Unit observer accompanies and directs the pilot around a pre-determined route — roughly seven or eight miles from the State's borders when one plane flies or around eastern and western sectors when two planes take to the air.

In 1978 fire observation planes went aloft on 28 days which, Snyder says, is about average. Annual contracts with private bidders usually specify about 200 hours of flight time per year.

Observers take to the air on danger days at 1 p.m. and fly until late afternoon or even until dark if there's a need, since past records show most forest fires begin between noon and 4 p.m. Geographically, the greatest number of forest fires occur in Western Connecticut, in the Naugatuck Valley and on up through Waterbury, Wolcott, Bristol, Plainville, and onward to the north. (DEP's Region II, which includes the southern part of this stretch, logged

818 of the 1,455 forest fires reported in 1979.)

Working from gridded State maps, fire observers radio information to DEP's radio room on the size of any fire, any threatened structures, control equipment at the scene, and routes to the fire scene. If no one is on the fire, airborne observers can bring suppression crews in "so close that you can smell the smoke."

During the high danger fire season the DEP State Forestry Unit still operates a 65-foot lookout tower on Mohawk Mountain in Cornwall, manned for fire observation and communications. Doing the manning, in this instance is a 27-year veteran seasonal employee, Josephine Vaill. The Mohawk location is the only operational lookout tower remaining in Connecticut. The original system, started in 1911, expanded to 19 towers by the late 1940s but has now succumbed to the advances in aircraft and radio technology. Increasing personnel expenses, maintenance, and vandalism costs, combined with greater flexibility on the part of aircraft, have contributed to making the use of towers almost obsolete.

Although fire fighters are effective at curbing Connecticut's forest fires, you, the public, can help to make their jobs easier. Without question, the major cause of Connecticut forest fires is people. No matter how good the fighters, the best place to fight forest fires is to prevent their starting in the first place. ■

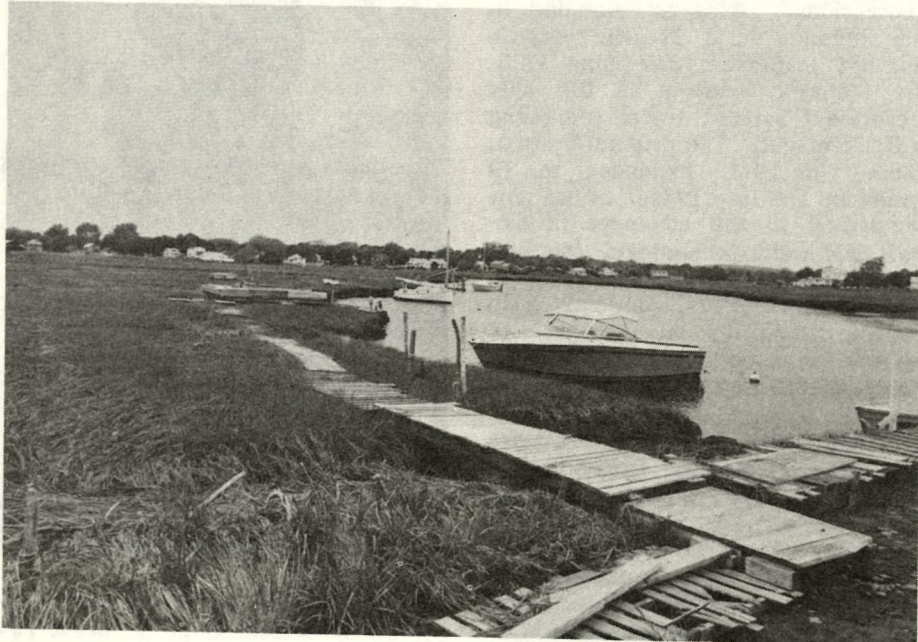


*Locally, access by road and availability of water simplify forest fire fighting.*

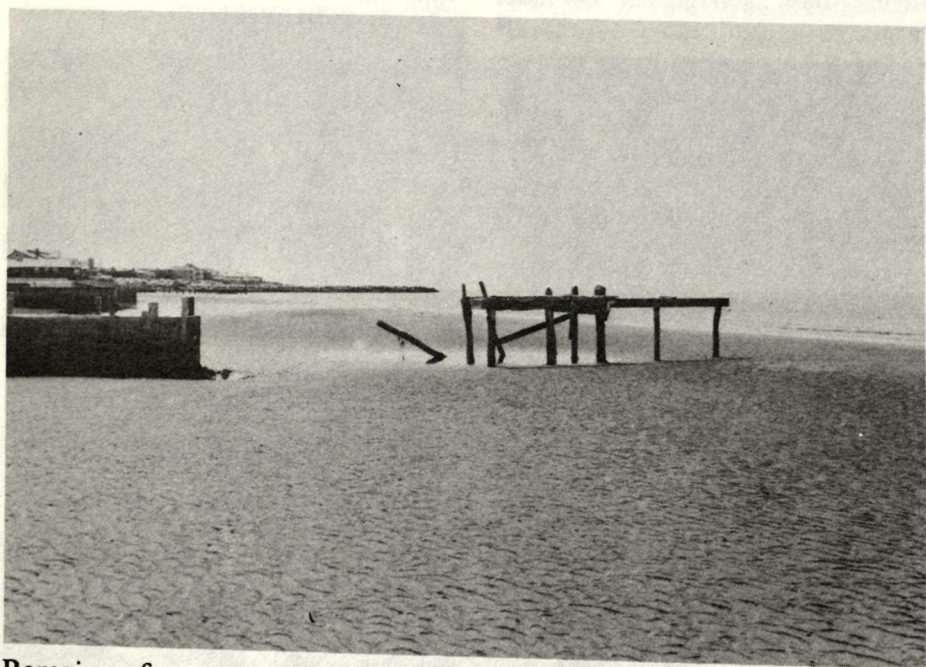




Recreational boat moorings in a tidal marsh.



## Scenes of the Connecticut Shoreline



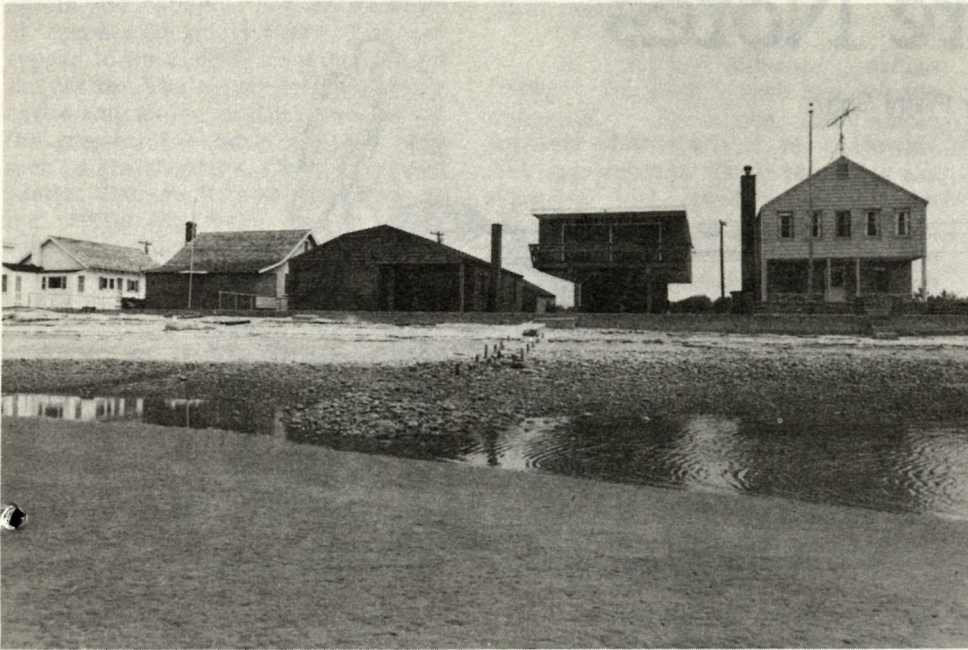
Remains of a structure on sandbar.

Marina on the  
Connecticut River.

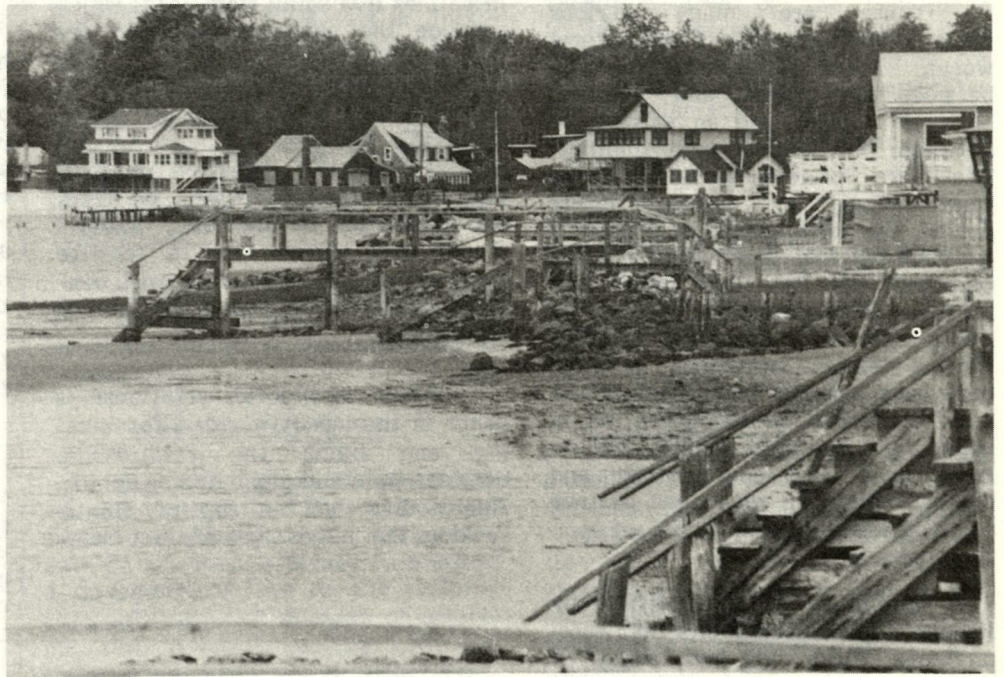




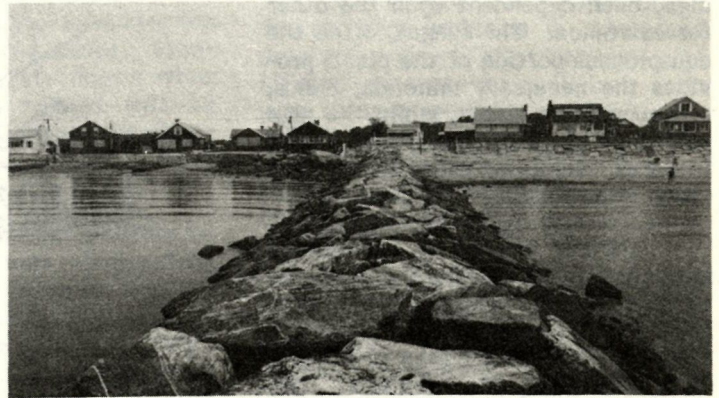
Shoreline cottages at low tide.



Piers providing access to the water at low tide.

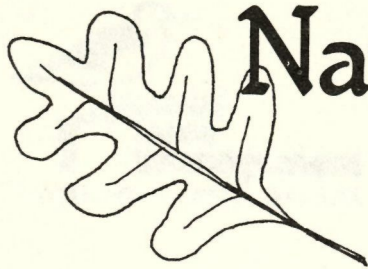


Beach grass and sandbar on a tidal river.



Erosion protection structures.





# Nature Notes

by Penni Sharp

## Nature Pairs Some Strange Partners

*Sym·bi·o·sis (sim bi-o sis) Biol. The living together of two dissimilar organisms, esp. when this association is mutually beneficial.*

There are many curious examples of symbiosis in the natural world. These relationships can be between one plant and another, between a plant and an animal, or between one animal and another. There are refinements among these relationships. As commonly interpreted, the term symbiosis is used to describe pairs of organisms that live together yet do not harm one another; thus parasitism, a form of living together, is excluded. Symbiosis can include: mutualism, in which organisms depend upon each other and both benefit; protocooperation, in which both partners benefit, yet do not depend upon one another; and commensalism, in which one partner benefits while there is no effect upon the other.

Mutualism is exemplified by lichens, the pioneer plants that grow on trees, rocks, and bare soils. A lichen comprises a fungus and an alga, each dependent upon the other for existence. The fungus, often the conspicuous portion of the plant, provides the necessary minerals, fluids, and supportive tissue, while the alga performs photosynthesis and manufactures carbohydrates which are used by the fungus.

Another interesting example of mutualism is the relationship between termites and the protozoans that they harbor in their intestines. Termites feed on wood which they chew into small particles and swallow. By themselves, however, they are unable

to digest the cellulose. Within their intestines live small flagellates which produce the enzymes necessary for the digestion of cellulose. The flagellates have a sheltered place to live and a steady supply of food, while the termites get most of the sugars from the digestive process. The flagellates are passed on from one generation to the next. Experiments have shown that a termite deprived of its protozoans will consume quantities of wood yet die of starvation.

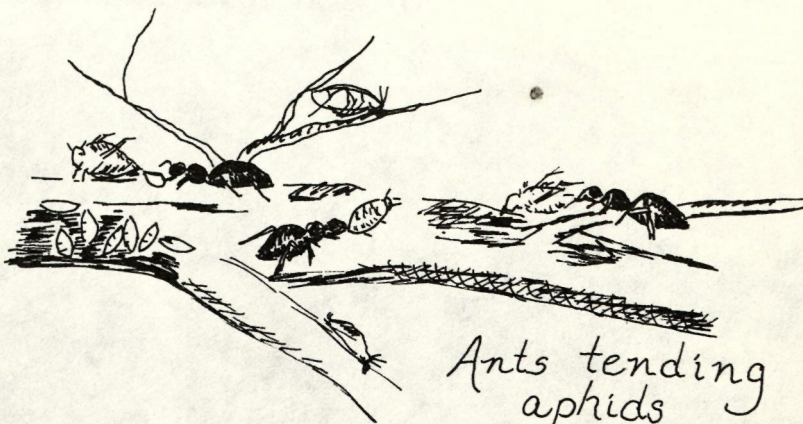
Other symbiotic relationships occur in the insect world, a fascinating one being the relationship between ants and plant lice or aphids. Aphids live on the sap of plants, sucking the juices through a tubular

mouth part. Aphids require protein for growth and reproduction, and plant sap is low in protein though rich in carbohydrates. In order to get sufficient protein, aphids consume large quantities of sap and, as a result, excrete large amounts of sugar. Ants are naturally interested in this sugary excretion. They "tap" the aphid to stimulate the excretion, and some species of aphids are unable to excrete the liquid sugar without the action of the ant.

Ants also protect the aphids from predators, build roofs to shelter them, and transport their eggs underground to winter over. In spring, the ants carry the hatched larvae to plants for feeding. The relationship of ant to aphids is often compared to that of man and cattle.



*Cattle egret*



*Ants tending aphids*



The association between cattle egrets and cattle is a good example of commensalism as there does not appear to be a significant benefit to the cattle. The egrets follow grazing cattle and, as the cattle move among the grasses, the birds capture prey such as grasshoppers, flies, frogs and beetles that are stirred into action as the cattle approach. Fewer egrets have been found near resting cattle than near actively grazing cattle. The birds rarely feed on the ticks and other parasites that may be present on the cattle, thus it is assumed that the cattle do not derive much from this relationship which clearly benefits the egrets. The cattle egret is an Old World species and arrived in this hemisphere around the turn of the century. Originally restricted to South America and Florida, the cattle egret has extended its range northward to Canada and is found in parts of Connecticut.



Hermit crab  
and  
Sea anemone

Symbiotic relationships are not confined to the terrestrial environment. Many of the intriguing partnerships occur in the oceanic realms.

In coral reefs, "cleaner" stations have been observed, inhabited by fish whose specialty appears to be cleaning other fish of their parasites. Fish congregate at these stations, peacefully awaiting their turn to be cleansed.

Fish species which may be highly aggressive in other areas of the reef are docile when waiting at cleaning stations. Predator fish allow the cleaners to enter their mouths, yet do not swallow them. In one study, all the cleaners were removed from a particular reef. Many fish left the reef, while those that re-

mained showed skin disorders within a short period of time.

A useful alliance occurs between the hermit crab and the sea anemone. Anemones are simple animals characterized by a flower-like appearance. Their tentacles are equipped with numerous sting cells similar to those of stinging jellyfish. Anemones are found living on the shells of hermit crabs and are known to aid in the crab's defense. Many a would-be predator has recoiled from the sting of the anemone. The sea-

anemone probably derives benefit by receiving a share of the hermit crab's food. Some species of hermit crab, when moving to a larger shell, will take care to transfer the anemones to the new home.

These examples are but a few of the intriguing partnerships that have been observed in the natural world. Ethology — the comparative study of behavior — has brought to light many fascinating insights into animal behavior including a greater understanding of the complex relationships among living organisms. ■

## Water Seminar

The University of Connecticut's Institute of Water Resources will wind up its 1979-80 groundwater protection seminar series with:

"The Ozonolysis of Organic Pollutants," Dr. Wallace C. Pringle, Chemistry Department, Wesleyan University; "Heavy Metals in Freshwater Wetlands," Dr. Antonio W. H. Damman, Biological Sciences Group, the University of Connecticut; "The Effects of Hormonal Pollutants on Aquatic Crustacea," Dr. Hans Laufer, Biological Sciences Group, the University of Connecticut. April 16, 1980; 3 p.m.

Seminar will be held in Rm. 200 of the Nathan L. Whetten Graduate Center at the University of Connecticut. ■

## Be a Backer

The Office of the Commissioner of Environmental Protection and DEP's Information and Education Section are raising money to produce a documentary film on the restoration, after several decades of effort, of the Atlantic salmon to the Connecticut River and its tributaries.

DEP Fisheries Biologist Stephen Gephard is writing the script. Filming should begin in late March when this year's salmon smolts will be released into the Connecticut River system.

Want to help? Contributions to the "Atlantic Salmon Restoration Film Fund" can be sent to Department of Environmental Protection, Rm. 117, State Office Bldg., Hartford, CT 06115. Questions? Contact Charles Griswold at (203) 566-8108. ■

## A Look at the Chiefs

Citizens of Connecticut who are members or descendants of Indian tribes may be pleased to note that photographs of tribal chiefs of the Connecticut Indian tribes may be viewed in the Capitol building. Three framed photographs were hung in the reception area of the Governor's Office in January by Mikki Agan-stata, Indian Affairs Coordinator for DEP. One photograph commemorates the proclamation of Indian Day, September 27, 1979, attended by the Tribal Chiefs of the five tribes of Connecticut. In two additional photographs, the present chief and a past chief of the Golden Hill Paugussett Reservation are shown. The photographs may be viewed during regular hours of the Governor's Office. ■

## Erosion Conference

Concerned representatives from national, state, county, and local agencies and organizations, in cooperation with the National Association of Conservation Districts, are planning a conference on soil erosion and sedimentation for the states of Massachusetts, Rhode Island, and Connecticut.

Soil erosion and sedimentation are growing problems in urban and developing areas. Not only are significant amounts of soil lost each year through erosion but eroded sediment also contributes to water pollution. While some municipalities have adopted control ordinances, the goal of the conference is to spur action at state levels.

The conference will be held April 10 and 11 at the Sheraton Inn in Sturbridge, Massachusetts. For further information, contact George L. Rosebrooks, Gore Road, Webster, MA 01570. ■





By Martina Delaney,  
Citizens' Participation Coordinator

## For Your Information

### Earth Day '80 Plan to Observe

In 1970 Americans all across the nation participated in the first Earth Day to call attention to the serious plight of our environment. Much of the impetus for the initial observance came from young men and women on the campuses of our colleges and universities and even our high schools. There seemed to be an almost spontaneous awareness of the tremendous threats posed by pollution and the uncontrolled depletion of our resources.

The 1970s saw a dramatic expansion of citizen initiatives aimed at protecting the environment and conserving natural resources. These initiatives expressed themselves at all levels of society and resulted in the enactment of major pieces of national environmental and conservation legislation.

This year April 22 has been designated as Earth Day '80. To mark the tenth anniversary of the first Earth Day, the Sierra Club, in cooperation with the Council on Environmental Quality and the Connecticut Department of Environmental Protection, is coordinating observances across the State. Environmental Education is the central theme of the celebration.

It is expected that Earth Day '80 activities will be conducted throughout the month of April and in conjunction with other environmental celebrations such as Keep America Beautiful Day, April 26; Arbor Day, April 25; and Year of the Coast activities. One national goal of Earth

Day '80 is to offer activities that strengthen ties with labor, consumer, and commercial interests.

Many of Connecticut's local, State, and national environmental groups already have begun to develop Earth Day programs. Plans now taking shape across the State include a cleanup of the shores of the Connecticut River and a week of citizens' group activities, including workshops, information booths, and displays of local environmental achievements, in one of the State's downtown areas. An energy alternative vehicle parade and fair is also in the planning stages.

These are a few of the activities we have heard about. If you plan any Earth Day activities, either on April 22 or during the month, please keep us informed. An Earth Day

calendar of events will be published and we will include your activity if we know about it. If you are interested in participating in an Earth Day '80 activity or would like ideas, further information can be obtained by contacting either Holly Schadler of the Sierra Club, 69 Lafayette Street, Hartford (527-9788) or Martina Delaney, DEP Information and Education Unit (566-3489).

# EARTH DAY '80 APR. 22



EARTH DAY '80  
1638 R Street, NW  
Washington, DC 20009  
(202) 293-2550

### Recent Natural Resources Publications

*"Bedrock Geology of the Haddam Quadrangle" by L. Lundgren: Connecticut Geological and Natural History Survey Quadrangle Report, No. 37 (1:24,000 scale map)*

*"Bedrock Geology of the Sharon Quadrangle" by R. Gates: Connecticut Geological and Natural History Survey Quadrangle Report No. 38 (1:24,000 scale map)*

*Surficial Geologic Map of the Marlborough Quadrangle: U.S. Geological Survey GQ-1504 (1:24,000 scale map)*

*Map Showing Textures of Unconsolidated Materials, Connecticut Valley Urban Area: U.S. Geological Survey Map I-1074-B (1:125,000 scale map)*

*Water Resources Inventory, Quinipiac River Basin: Water Resources Bulletin 27 (1:125,000 scale map)*

*Water Resources Data for Connecticut, 1978: U.S. Geological Survey*

Contact DEP's Natural Resources Center, Rm. 555, State Office Bldg. (566-3540), for information on price and availability.



# Acid Rains

By Tess Gutowski, Water Compliance Unit

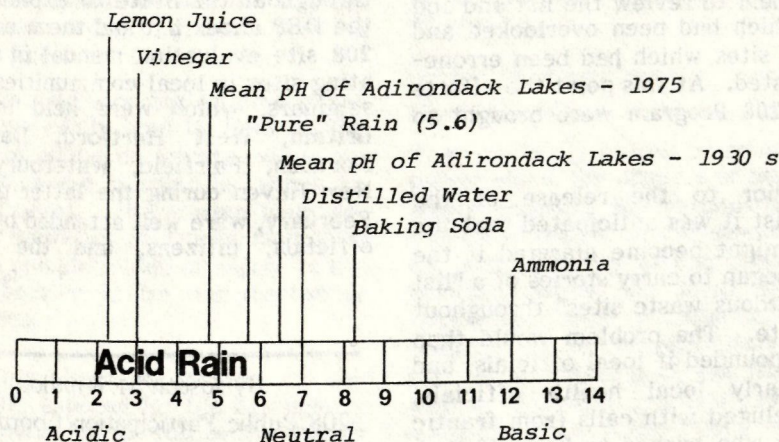
The rains that fall across north-eastern North America are gradually growing more acidic, causing significant environmental problems in some areas. Identified back in the early 1950s, "acid rain" deposition has been increasing steadily over the years. The Environmental Protection Agency (1979) reports that the average rainfall pH is less than 4.5 in the northeast; the pH of normal unpolluted rainfall is 5.6.

Acid rain is the result of airborne sulfur oxides, nitrogen oxides, and carbon dioxides ( $\text{SO}_x$ ,  $\text{NO}_x$ , and  $\text{CO}_2$ ) reacting chemically in the atmosphere to form sulfuric, nitric, and carbonic acids ( $\text{H}_2\text{SO}_4$ ,  $\text{HNO}_3$ , and  $\text{H}_2\text{CO}_3$ ). Other acids, such as hydrochloric acids, also contribute to the formation of acid precipitation. These pollutants are transported hundreds, even thousands, of miles by moving air masses and prevailing winds and eventually return to earth as "acid precipitation," snow, rain, or sleet.

Combustion of coal and other fuels and motor vehicle emissions account for the major portion of the components of acid rain. Environmentalists cite the midwestern states as major contributors to the acid rain problem that plagues the northeast because of the prevailing movement of air masses across North America. In view of the present energy situation, acid rain deposition will increase as Americans rely more upon coal and various states relax their limits on sulfur in fuels.

Some potential and very real environmental impacts caused by acid rains include effects on the growth rates and productivity of agricultural crops and forests, destruction of fish populations in seriously affected waters, effects on groundwater quality, contamination of drinking water supplies by metals leached from soils and pipelines, and the deterioration of buildings.

The pH, a numerical value used to describe the strength of an acid, is determined by a mathematical formula based on a solution's concentration of hydrogen ions ( $\text{H}^+$ ). The pH scale ranges from a numerical value of 0 to 14. A value of pH 1 is very acid (battery acid), pH 7 is neutral, and pH 13 is very alkaline (lye). Because of the logarithmic nature of the scale, pH 4 is 10 times more acidic than pH 5, and 100 times more acidic than pH 6, and so on. Precipitation is defined as being acidic if the pH is less than 5.6, the pH of normal, unpolluted rain. The slight natural acidity of normal rain is due to the presence of carbonic acid ( $\text{H}_2\text{CO}_3$ ), which is formed by the reaction of atmospheric carbon dioxide ( $\text{CO}_2$ ) with water. (From "Research Summary, ACID RAIN," Oct. 1979. EPA-600/8-79-028.)



Only recently have the United States and Canada initiated major research projects concerning acid rain. The EPA has begun a program to investigate the acid deposition problem and compile a data base.

Acid rain data for Connecticut is scanty. A 1976 report by Frink and Voigt found acid precipitation not a serious threat to soils in the Northeast. Yet the report indicated that detrimental changes in soil productivity could occur if acidity in precipitation should increase substantially or if the buffering capacity of the soil ecosystem were seriously reduced.

A review of monitoring data for three Connecticut Class A rivers for the years 1967-1968, 1974-1975, and 1977-1978 yields neutral pHs for these waters. Frink and Voigt (1976) reported that alkalinities of several soft water lakes in Connecticut did not change during a 35 year period between the late 1930s and the early 1970s. To date, no systematic study has been undertaken to identify sensitive lakes and to evaluate acid rain impacts.

The problem of air pollutant transport and acid rain must be addressed through EPA regional control strategies. Evidence suggests that the relaxation of air quality standards in other states can create a serious acid rain threat to the northeast states.

Literature cited: Frink, C.R. and G.K. Voigt. 1976. Potential Effects of Acid Precipitation on Soils in the humid temperate zone. Proceedings of the First International Symposium on Acid Precipitation and the Forest Ecosystem. USDA Forest Service General Technical Report NE-23.

## EPA Publications Available:

1. "Research Summary, ACID RAIN," Oct. 1979. EPA-600/8-79-028
2. "Decision Series: Acid Rain." December 1979. EPA-600/9-79-036.

Request these from: Research Information, RD-674, Office of Research & Development, U.S. Environmental Protection Agency, Washington, D.C. 20460.



# 208 water quality management

## Hazardous Waste Site Investigation, Manual, and Local Seminar Series

During the past year, the improper disposal of hazardous waste has emerged as the nation's principal environmental problem. The media have carried horror story after horror story on the consequences of the improper disposal of hazardous wastes, and locations like Love Canal in Niagara Falls, New York, have become household words.

In Connecticut, groundwater contamination resulting from the improper disposal of hazardous wastes has occurred in locations as diverse as Plainfield, Southington, Canton, Woodbury, and Beacon Falls. While these incidents have not proved to be as catastrophic as that which occurred at the Love Canal, they serve to emphasize that the problems caused by the improper disposal of hazardous wastes are not just problems that occur in other states.

The Connecticut 208 Program has been involved with the problem of hazardous waste management since early 1977. The last three issues of the *Citizens' Bulletin* have detailed the program's efforts during 1979 to conduct a feasibility study which will ultimately lead to the development of a hazardous waste treatment and disposal facility for Connecticut. Such a facility will help to insure that the disposal of hazardous wastes in the future will be handled in the safest possible manner. Obviously, this will minimize the impact of hazardous wastes on Connecticut's environment. However, a major problem presently exists because of the improper disposal of these wastes in the past.

By mandate of the Connecticut General Assembly, the Department of Environmental Protection has compiled an inventory of hazardous waste disposal sites in the State. The Hazardous Materials Management Unit, which was in charge of this effort, utilized a three-step process to produce the inventory as follows:

- 1) develop a pre-inventory check list of locations which may need to be inventoried;
- 2) continuously revise and update the pre-inventory check list as new, potential, candidate sites for inventory are brought to the attention of the Hazardous Materials Management Unit; and
- 3) prepare and present to the General Assembly by January 15, 1981, the inventory of sites in Connecticut known (substantiated by investigation and documentation) to be used for toxic or hazardous waste disposal.

Step one, the development of the pre-inventory check list, involved sending questionnaires to municipal officials asking them about hazardous waste disposal sites in their communities. In addition, numerous State files were searched by the DEP Hazardous Materials Management Unit. The resulting check list, with continuous revision (step two), will be used by the DEP to decide which sites will actually be inventoried.

The appearance of a location on the check list does not mean that disposal of hazardous waste has taken or is taking place at that location. No assessment was made at this point as to whether or not a problem exists. The check list was only intended to guide the DEP in deciding what locations or types of locations warrant consideration for the actual inventory. After internal review, the respective check lists were released to each town.

The purpose of sending the check list to the local officials was to allow them to review the list and add sites which had been overlooked and remove sites which had been erroneously listed. At this point the efforts of the 208 Program were brought to bear.

Prior to the release of the check list it was anticipated that the public might become alarmed if the media began to carry stories of a "list of hazardous waste sites" throughout the State. The problem would then be compounded if local officials, and particularly local health officials, were deluged with calls from frantic citizens who wished to know if they were in danger because the news-

paper had listed sites in their neighborhoods. In many cases, local officials might not be able to handle the number of such requests or know who to contact at the State level for assistance.

The 208 Program developed a hazardous waste site investigation manual for use by local officials when dealing with the DEP check list. Specifically, the manual answers the following questions which have been raised by citizens and local officials:

- 1) What environmental "time bombs" exist in our community?
- 2) How can their threat to the community be assessed?
- 3) What can be done if a significant hazard is discovered?

The manual is divided into two major sections. The first describes how to evaluate the hazardous potential of a site. It includes site evaluation information which is generally available and the sources of that information, critical exposure levels, and the actions which should be taken if significant hazards are found.

The second section provides general, background information. It describes the waste materials which can be considered hazardous, identifies those industries and commercial establishments which use or generate these materials, and describes how these materials move in the environment and how people are affected by them. It also describes how various materials should be sampled.

Because of the complexity of the problem the 208 Program scheduled a series of seminars throughout the State to explain both the DEP check list and the use of the 208 site evaluation manual in evaluating sites in local communities. The seminars, which were held in New Britain, West Hartford, Danbury, Norwich, Fairfield, Waterbury, and New Haven during the latter part of February, were well attended by local officials, citizens, and the press.

To page 19

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By Joseph M. Rinaldi,  
208 Public Participation Coordinator,  
P.O. Box 1088, Middletown, Ct. 06457

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# First Year Status Report: Southwestern Aquifer Assessment

By Mark Fitzgerald, Natural Resources Center

In 1979 the General Assembly mandated an assessment by the Department of Environmental Protection of potential ground water aquifers in southwestern Connecticut. Any water bearing earth or rock material is considered an aquifer, but in this case aquifer specifically refers to the water-saturated coarse-grained stratified sands and gravels deposited by glacial action. The program was initiated because rapid urban and industrial growth in Fairfield County resulted in water supply facilities operating at or near their capacity. This is a critical situation since the demand for water increases every year and, if there is a recurrence of the drought conditions of the 1960s, existing water supplies may not be adequate to meet everyday needs.

To solve this potential problem the legislature authorized \$67,000 to the Department of Environmental Protection for the first year of a three-year program to investigate the current use of ground water aquifers in the region and the potential water yielding capability of other untapped ground water sources. The effort helps to meet a commitment by the State to developing a state-wide long-range water resource strategy for ensuring potable water for all citizens of Connecticut.

## Ashes to "Incidents"

Connecticut residents who burn wood or coal to heat their homes should use special care in the disposal of ashes in order to prevent possibly serious fires.

Live embers buried among the ashes can easily lead to fires on the trucks of public or private collectors or, even worse in some instances, at landfill areas. There have been recorded incidents of trucks having to dump a complete load of refuse in the street because a fire was started by live ashes.

This situation creates an unnecessary expense for the community or the collector as well as the danger of a serious incident. Underground landfill fires produce unpleasant

In carrying out the mandate the Department of Environmental Protection entered into a cooperative agreement with the U.S. Geological Survey, Water Resources Division, bringing together a state/federal team of geologists, hydrologists, and drilling experts under the direction of Daniel B. Meade of the Natural Resources Center. During the summer, fall, and winter of 1979 the team completed the basic data collection phase of the study: the review of existing information, on-site test drilling, mapping, and seismic profiling of potential and known aquifers.

During the next phase, to begin in the summer of 1980, the work will involve compiling the mapped data, drainage basin profiling, analysis of drill cuttings, and evaluation of water level measurements and stream flow statistics.

In the third and final year of the study, digital computer models will be developed for each aquifer. These models are then matched as closely as possible to the real life conditions to respond to varying weather and seasonal conditions and even man-induced stresses such as water withdrawals and discharges. Only at this point can the modeling tool help us predict the quantities and availability of ground water for the region. ■

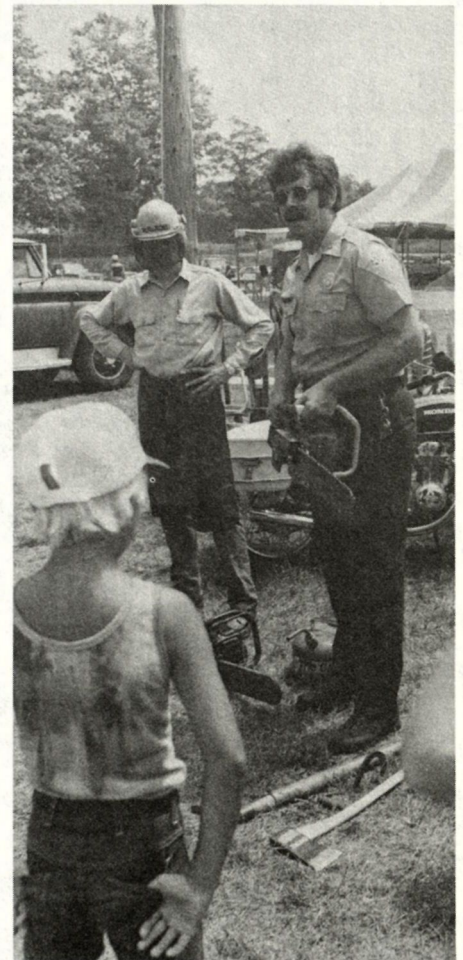
odors at the very least and have the potential for producing significant air pollution. They are notoriously difficult to extinguish and often go undetected until they have gotten out of control. ■

## Hazardous Waste Sites From p 18

They certainly helped to educate the public about the dangers of hazardous waste disposal. But perhaps the most important aspect of the seminars was the strengthening of communications between State and local agencies. Ultimately, such communication and cooperation will be absolutely necessary in the solving of the hazardous waste disposal problem in Connecticut. The Connecticut 208 Program is proud of its instrumental role in effecting such cooperation. ■

## Fell Fashions

With the recent surge in popularity of woodstoves and, as a result, in wood cutting, DEP central and regional office staff members are often called on for chain saw safety demonstrations. Here, last summer at the Voluntown Volunteers Festival Michael Roberts, Pachaug Forest Unit Manager, outlined safe use of a chain saw, and Forest Manager S.R. Raymond modeled what a safely turned out woodsman should wear. Besides heavy shoes and close-fitting clothes including a long-sleeved shirt to prevent scratches, Raymond wears a hard hat, ear protectors, a face shield of fine screen that won't steam up, and chaps.





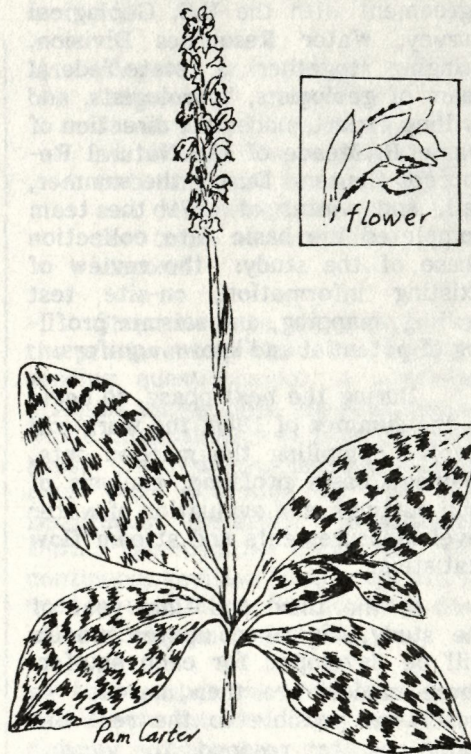
# Trailside Botanizing

by G. Winston Carter

Rattlesnake Plantain is a rather unusual looking plant with its thickened, evergreen leaves and many white veins. These plants have only basal leaves which grow in a rosette. The cylindrically arranged flowers blossom from July to September. Its flower stalk may range from about six inches to 20 inches in height. The seeds and flower remains may persist throughout the winter. During the late fall or winter the basal leaves may be covered with dead leaves or snow.

Rattlesnake Plantain is not a plantain but an orchid. Goodyera pubescens is our most common species, although there are three others growing in the East. It may have received its name originally because of the resemblance of its spike-like raceme to that of our common plantain. This genus was named after John Goodyear, an English botanist.

## Rattlesnake Plantain *Goodyera pubescens*



The specific Latin name, pubescens, refers to its hairy stem.

The habitat of various types of rattlesnake plantain varies from dry to moist woods and from coniferous to mixed forests. The tiny roots of one smaller species attach themselves to a loose mat of old pine needles rather than the soil, because this is where the fungi live that are necessary for the life of this particular orchid.

The fact that the leaves of the plant resemble the scales on snake-skin has given rise to a great deal of folklore. It has been reputed to cure a variety of ailments from hydrophobia to scale skin disease to snake-bite. It is said that the Indians had such faith in its healing powers that they would allow a snake to strike them for a small sum if they had these leaves nearby to apply to the wound.

## DEP citizens' bulletin

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